

# New Brunswick Disease Watch Bulletin

Office of the Chief Medical Officer of Health

## Introduction

Welcome to the 11th edition of the *New Brunswick Disease Watch Bulletin*.

In this issue, we look at the first Canadian case of the newly re-emerged adenovirus serotype 14 (Ad14) and actions for physicians managing cases with severe pneumonia suspected due to this pathogen.

An update is provided on the syphilis outbreak in New Brunswick, with briefing on provincial epidemiology and strategies to control and prevent the outbreak.

We also have an update on seasonal influenza based on National Advisory Committee on Immunization recommendations, and an article with a focus on anaphylaxis and other allergic reactions following immunization.

Moreover, we are providing information about a training program for health-care professionals, entitled *3-Minute Empowerment: Improve Efficiency - Support Behavioural Change*, and are including an announcement about two new resources: *Loving Care* and *Health Indicators*.

We welcome feedback and suggestions for topics.  
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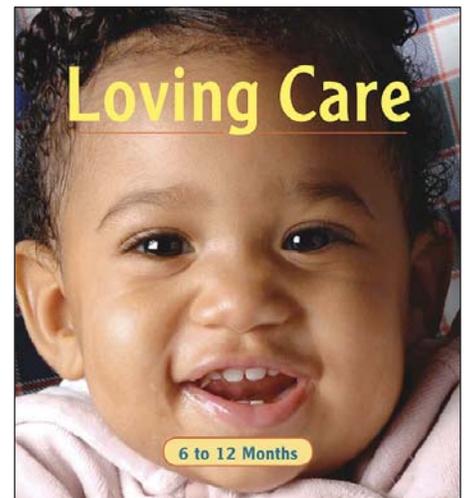
Beautifully crafted and easy to read, the booklets capture developmental stages and provide parents with a wealth of information. Each booklet contains advice based on the latest research on topics such as feeding babies, sleep, activities for parents to do with their baby, literacy activities and immunization. There is also information and advice for grandparents and other family members.

## Loving Care: A new resource for parents and practitioners

The Office of the Chief Medical Officer of Health announces that the *Loving Care* series of parenting booklets is now available in New Brunswick. This resource can be used by all health-care professionals to ensure they convey consistent messages to parents across the province. Parents will receive these resources at the hospital following the birth of a child. Parents of infants younger than one year who have not received a copy from a hospital may obtain one from Public Health.

The booklets are also available on the Department of Health website (in English: <http://www.gnb.ca/0051/pub/index-e.asp#L>; in French: <http://www.gnb.ca/0051/pub/index-f.asp#T>).

The three *Loving Care* booklets are being adapted with permission from the Province of Nova Scotia and include: Birth to 6 months, 6-12 months and Parents & Families. The first two booklets are in use, and the third will be available in 2012.



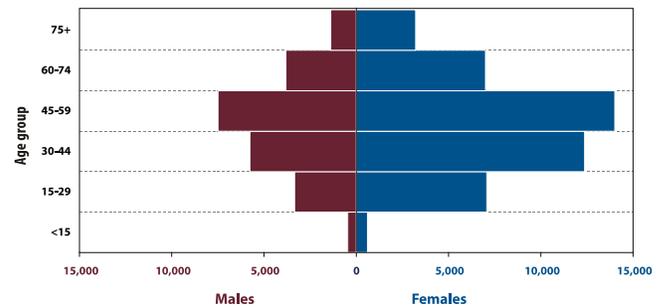
# New resource on population health surveillance in New Brunswick

The Office of the Chief Medical Officer of Health has launched a series of information bulletins entitled *Health Indicators*.

Each issue focuses on a specific topic relevant to population health, such as chronic diseases and the factors that influence health during the life course. The objective is to make available the latest data and information for New Brunswick on a range of public health topics, in a format that may be easily used by program managers, clinicians, researchers, students or anyone with a professional or personal interest in population health issues. The bulletins are available on the Office of the Chief Medical Officer of Health website (English: [www2.gnb.ca/content/gnb/en/departments/ocmoh/publications.html#news](http://www2.gnb.ca/content/gnb/en/departments/ocmoh/publications.html#news); French: [www2.gnb.ca/content/gnb/fr/ministeres/bmhc/publications.html#news](http://www2.gnb.ca/content/gnb/fr/ministeres/bmhc/publications.html#news)).

The first issue, published in January 2011, presents the latest information and statistics about teenage pregnancy in New Brunswick. Teen pregnancy is considered a public health problem because it may result in important, immediate and long-term health, social and economic consequences for young women and their infants. The report documents the overall decline in teen pregnancy during the last two decades and presents the main trends in the rates across health regions and

Figure 1. Number of persons receiving medical attention for a mood or anxiety disorder, by age group and sex, New Brunswick, 2008-09



**Source:** Office of the Chief Medical Officer of Health, using data from inpatient hospitalization records (including acute, chronic, long term and rehabilitative care), the Medicare Resident Registry and the Health Insurance Claims Database for the 2008-09 fiscal year.  
**Note:** Data are based on the number of residents having received medical care at least once in the year according to the main or underlying diagnosis.

counties. The second issue, published in September 2011, focuses on mental health, including the latest data and trend information about the burden of mental-health conditions in the province. Medical services data reveal that mood and anxiety disorders may strike at any age, with the largest proportion of individuals having received medical care for such conditions being women aged 30 to 59 (see Figure 1).

Forthcoming issues of *Health Indicators* are expected to focus on topics such as neurodegenerative diseases and unintentional injuries. The Office of the Chief Medical Officer of Health welcomes all comments and suggestions for future topics; please contact Neeru Gupta, senior epidemiologist, at [neeru.gupta@gnb.ca](mailto:neeru.gupta@gnb.ca).

## Adverse Events Following Immunization: anaphylaxis and other allergic reactions

### Background to Adverse Events Following Immunization (AEFIs)

An important part of the immunization program is to ensure safety of the administered vaccines. It is achieved at several levels, including through good manufacturing practices; strict adherence to recommended storage, transportation and distribution of vaccines; and competent immunization techniques.

Still there is a need to monitor AEFIs to maintain public trust in vaccination. Such monitoring starts at the level where direct patient care is provided; the role of physicians, nurses and other immunizers cannot be overemphasized. Reports about AEFIs are then collected and collated at the provincial and national levels, and an assessment of association and causality is performed. Provincial public health authorities, the Public Health Agency of Canada, Health Canada and vaccine manufacturers play a role in this process. Complete, timely and accurate data allows for better

### Key points

- Reporting AEFIs is important to ensure continuous safety of vaccines in Canada and public trust in immunization.
- While anaphylaxis is extremely rare, every immunization carries an associated risk of producing an anaphylactic reaction.
- It is important to keep up to date about managing anaphylaxis.
- Anaphylaxis should be differentiated from benign post-vaccination reactions and less severe forms of allergic reaction. Only anaphylaxis is a contraindication to further vaccination.
- Reporting AEFIs is mandatory in New Brunswick under the Public Health Act. It should be reported to the Regional Medical Officer of Health (RMOH) within seven days.
- The AEFI reporting form is available at <http://www2.gnb.ca/content/dam/gnb/Departments/h-s/pdf/en/CDC/Epidemiology/NBAEFIFormE.pdf>

determination whether certain vaccines cause adverse events. Data collected over longer periods are superior to isolated reports; consistency of AEFI reporting is of great importance.

In New Brunswick, the *Public Health Act*, proclaimed in 2009, makes it mandatory to report any adverse event to a vaccine or other immunizing agents. Any AEFI must be reported to the RMOH in writing within seven days of a health care professional becoming aware of it [1]. The reporting form is at <http://www2.gnb.ca/content/dam/gnb/Departments/h-s/pdf/en/CDC/Epidemiology/NBAEFIFormE.pdf>.

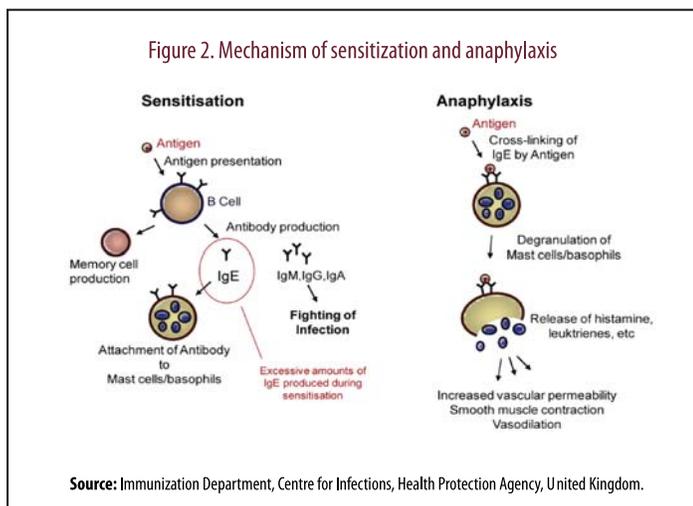
In this issue of *Disease Watch*, the focus is on anaphylaxis and other allergic reactions.

## Anaphylaxis and other allergic reactions

Anaphylaxis is the clinical syndrome that represents the most severe systemic allergic reaction and may be fatal in some cases. It results from immunologically induced release of mast cells and / or basophils mediators after exposure to a specific antigen in sensitized individuals [2, figure 1].

While anaphylaxis is extremely rare, every immunization carries an associated risk of producing an anaphylactic reaction. Based on Canadian surveillance data for vaccine adverse events, the annual rate of anaphylaxis ranges from 0.4 to 1.8 per one million doses of vaccine distributed in Canada [3].

Anaphylaxis often produces signs and symptoms within minutes of exposure to an offending stimulus. Most reactions begin within 30 minutes after an injection of vaccine, but some reactions may develop later. Twenty per cent of anaphylactic reactions follow a biphasic course. The second-phase reaction has been described as occurring between one and eight hours after initial reaction, but some evidence suggests that this second phase may occur up to 38 hours after initial reaction [4, 5]. Potential vaccine-specific triggers of anaphylaxis include *egg proteins* (yellow fever vaccine), *thiomersal*, *antibiotics* (neomycin, streptomycin and polymixin B), *toxoids* and *stabilisers* and *other vaccine components* (yeast, gelatin)



Anaphylaxis is a generalized reaction; therefore, a variety of clinical manifestations can be seen. Frequency of signs and symptoms of anaphylaxis is summarized in Table 1.

**Table 1. Frequency of occurrence of signs and symptoms of anaphylaxis [6]**

Signs and symptoms	Approximate frequency (%)
<b>Cutaneous</b>	<b>90</b>
Generalized urticaria (hives) and /or angioedema (welts)	85 - 90
Flushing	45 - 55
Pruritis with or without rash	2 - 5
<b>Respiratory</b>	<b>40 - 60</b>
Upper airway angioedema (stridor)	50 - 60
Dyspnea, wheeze	45 - 50
Rhinitis or nasal congestion	15 - 20
<b>Dizziness, syncope, hypotension</b>	<b>30 - 35</b>
<b>Abdominal</b>	
Nausea, vomiting, diarrhea, cramping pain	25 - 30
<b>Miscellaneous</b>	
Headache	5 - 8
Substernal chest pain	4 - 6
Seizure	1 - 2

**Source:** The diagnosis and management of anaphylaxis: an updated parameter. (2005). *Journal of Allergy and Clinical Immunology*, 115, S483-523.

Anaphylactic reactions should be differentiated from common benign reactions such as vasovagal reaction (fainting), anxiety attacks and breath-holding episodes. Anaphylaxis is also set apart from less severe allergic reactions by the simultaneous involvement of the cardiovascular system and loss of intravascular volume as well as respiratory obstruction. Anaphylaxis is a contraindication to further immunization while immunization can be administered with caution in a setting of other milder allergic reactions.

The cornerstone of the management of anaphylaxis is administration of epinephrine. The dose of 0.01 ml / kg (maximum 0.5 ml for adults and 0.3 ml for children) of aqueous epinephrine 1:1000 should be administered immediately by intramuscular or subcutaneous injection in the opposite limb to that in which vaccination was given [3]. Recent research established that intramuscular route to be superior to subcutaneous route [7] and intramuscular injection of epinephrine into the thigh (not used for vaccine administration) is the preferred route. If vaccine is injected subcutaneously, an additional single dose of 0.005 ml / kg (maximum 0.3 ml) of aqueous epinephrine 1:1000 can be injected into vaccination site to slow absorption. Local injection of epinephrine into intramuscular vaccination site is contraindicated because it dilates vessels and speeds absorption of the vaccine [3]. If major symptoms do not improve or worsen after the first dose of epinephrine, additional doses are warranted. Establishing airways may be necessary. Supplemental oxygen should be given to patients with respiratory compromise and frequent monitoring of vital signs and pulse oximetry is required.

As an adjunct to epinephrine other medications (i.e. diphenhydramine hydrochloride, inhaled beta-agonists, steroids) may be administered. When stabilized, patient should be transported to an acute-care facility. Further details of managing anaphylaxis following immunization are at [http://www2.gnb.ca/content/dam/gnb/Departments/h-s/pdf/en/CDC/HealthProfessionals/ANAPHYLAXIS-management\\_EN.pdf](http://www2.gnb.ca/content/dam/gnb/Departments/h-s/pdf/en/CDC/HealthProfessionals/ANAPHYLAXIS-management_EN.pdf) [8] and published in the *Canadian Immunization Guide* [3].

#### References

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7. Simons FER, Gu X, Simons KJ. Epinephrine absorption in adults: intramuscular versus subcutaneous injection. *Journal of Allergy and Clinical Immunology* 2001, 108:871-873
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## Seasonal influenza update

Vaccination against seasonal influenza started in New Brunswick in October 2011. The seasonal trivalent vaccine for 2011-12 (TIV) contains the same three components as the 2010-11 vaccine: A/California/7/2009 (H1N1-like virus), A/Perth/16/2009 (H3N2-like virus) and B/Brisbane/60/2008 (B Victoria lineage). Fluviral® is available for the use in Public Health programs.

Following publication of the *Statement on Seasonal Influenza Vaccine for 2011-2012* by the National Advisory Committee on Immunization, New Brunswick has enhanced its influenza immunization program by adding morbidly obese individuals (BMI>40) and Aboriginal people to the eligible groups for publicly funded vaccination. Other eligible groups remain the same as in the previous year. Seasonal influenza vaccine is provided in New Brunswick by primary care providers, Public Health nurses, certified pharmacists and by the Victorian Order of Nurses.

Other important considerations include a revised recommendation to use 0.5 ml dose for intramuscular TIV for all age groups as well as revised guidance on egg allergy in relation to the TIV. Egg allergy is no longer considered a contraindication for TIV. Egg-allergic individuals may be vaccinated against influenza using TIV without a prior influenza skin test based on the assessment of risk for a severe allergic reaction to guide the method of vaccination.

#### Reference

1. National Advisory Committee on Immunization (NACI). An Advisory Committee Statement. Statement on Seasonal Influenza Vaccine for 2011-2012. *Canada Communicable Disease Report* 2011, 37: ACS-5

## Adenovirus serotype 14: First Canadian cases are found in New Brunswick

### Background

Adenoviruses are a group of DNA viruses recognized as the etiologic agents of numerous syndromes. They most commonly cause acute respiratory diseases such as the common cold, croup, bronchitis and pneumonia. Depending on the infecting serotype, however, they may cause a variety of other illnesses such as gastroenteritis, conjunctivitis, cystitis and rash illness. Adenoviruses were first isolated in the early 1950s; today, more than 50 different serotypes have been identified [1].

Most adenovirus infections are mild or asymptomatic, especially among healthy individuals; young infants and the immunocompromised are most susceptible to severe complications [1]. Respiratory adenoviruses are spread in a manner similar to the common cold. The viruses may spread directly from person to person through coughing or sneezing as well as indirectly through contaminated fomites [2].

### Serotype 14

Serotype 14 (Ad14) was identified in 1955 during an outbreak of acute respiratory disease at a military recruit training facility in The Netherlands. Since the 1960s, however, it has been detected only rarely [3]. A newly re-emerged Ad14 strain was identified in the United States in 2006; most cases have been sporadic in nature. Outbreaks have also been identified in closed settings (such as military facilities) as well as the general community [3]. This serotype has been identified in Ireland as well as the United States, where the distribution to date involves at least 15 states [3-5].

While most recorded infections have been mild, severe disease and deaths have occurred. Further research is required to determine whether this particular strain is more virulent than others, and, if so, which groups may be at particular risk [1, 3, 6-8]. While a majority of those infected had underlying medical conditions, many did not [3].

### The New Brunswick context

In July of this year, Ad14 was identified in an elderly woman from eastern New Brunswick who was admitted with severe pneumonia. According to the National Microbiology Laboratory, this represents the first documented Canadian case. A retrospective analysis of all adenovirus positive specimens from spring onward was completed by the virology laboratory at the Dr. Georges-L.-Dumont University Hospital Centre in collaboration with the National Microbiology Laboratory; they identified two other serotype 14 infections. At least one of the three cases was identified as being a First Nations person. One of the cases was an infant, and the

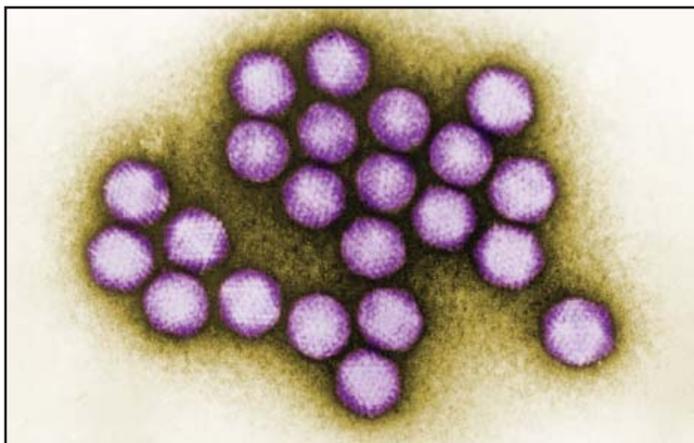
two others were advanced in age. The outcome of these cases has resulted in one fatality.

We recommend that physicians remain vigilant for this emerging pathogen; as such, please consider the following actions when managing cases of **severe pneumonia / respiratory infections that are not readily responding to antibiotics**:

- implement infection control measures in your health-care setting as per your infection control guidelines for acute respiratory febrile illness; and
- consider adenovirus as a possible cause; as such, collect respiratory secretions (bronchial, nasal, pharyngeal) for viral respiratory culture (in New Brunswick, testing is done at the Dr. Georges-L.-Dumont University Hospital Centre). Inform the Dr. Georges-L.-Dumont University Hospital Centre on the requisition form if adenovirus is suspected and if the sample is obtained from a case of severe pneumonia / respiratory infection

#### References

1. CDC Adenoviruses webpage. Accessed on Oct. 28, 2011 at <http://www.cdc.gov/ncidod/dvrd/revb/respiratory/eadfeat.htm>
2. Children's Hospital of Pittsburgh: Adenovirus website. Accessed on Oct. 28, 2011, at <http://www.chp.edu/CHP/P02508>
3. Kajong AE, Lu X, Erdman DD, Louie J, Schnurr D, St George K et al. Molecular Epidemiology and Brief History of Emerging Adenovirus 14-Associated Respiratory Disease in the United States. *J of Inf Disease*. 2010; 202(1): 93–103
4. CDC Adenovirus serotype 14 facts sheet. Accessed on Oct. 28, 2011 at <http://www.cdc.gov/ncidod/dvrd/revb/respiratory/ead-ad14-factsht.htm>
5. O'Flanagan D, O'Donnell J, Domegan L, Fitzpatrick F, Connell J, Coughlan S et al. First reported cases of human adenovirus serotype 14p1 infection, Ireland, October 2009 to July 2010. *Euro Surveill*. 2011; 16(8): pii=19801.
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**Transmission electron micrograph of adenovirus virions**  
Source: CDC/ Dr. G. William Gary, Jr.

## UPDATE: Syphilis outbreak in New Brunswick

New Brunswick is continuing to experience an outbreak of infectious syphilis. Forty-six cases were reported as of Oct. 26 (Figure 3), compared to 37 cases reported for all of 2010. Before 2008, fewer than five cases were typically reported each year. The increasing incidence of infectious syphilis in New Brunswick is shown in Figure 4. The largest numbers of cases have been reported in the Moncton and Fredericton areas. An increasing number of cases are being reported in Saint John and northern areas.

Since late 2009, 92 per cent of cases have been male. Most male cases have reported only male sex partners (MSM) with a small number who reported both male and female partners (bisexual) or female partners only (heterosexual).

We have recently seen an increase in female cases reported in New Brunswick, which has included syphilis diagnosed during pregnancy. Transmission of untreated or undertreated syphilis from mother to fetus is a major concern because congenital syphilis may result in miscarriage, stillbirth or long-term debilitating health outcomes related to mental and physical development of the infant. Although no cases of congenital syphilis have been reported in New Brunswick to date, practitioners are reminded to remain vigilant by screening all pregnant women for syphilis at their first antenatal visit.

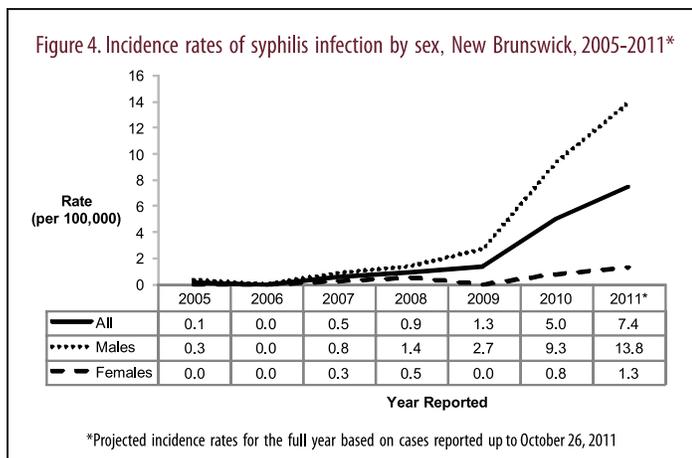
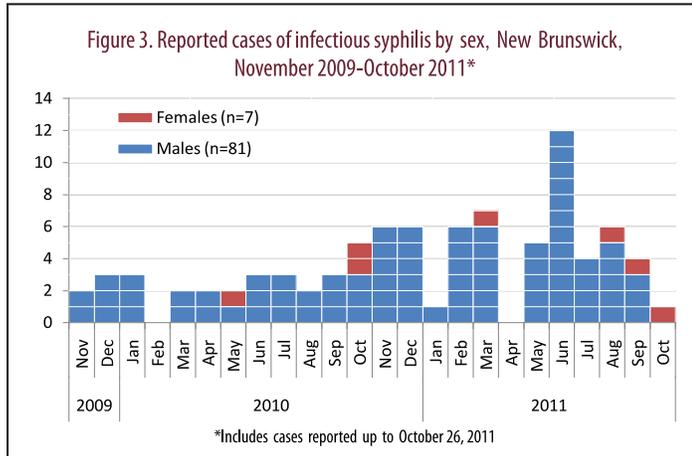
The syphilis outbreak in New Brunswick is not only affecting high-risk groups. The disease has been diagnosed in individuals aged 17 to 65 years and has included university students and professionals. A small number of cases with a large number of partners is likely contributing to a disproportionately high percentage of sexual encounters resulting in syphilis transmission (i.e., "core transmitters"). However, many other cases have reported only one or two partners in the year prior to diagnosis. This outbreak does not appear to involve traditional high-risk groups such as sex trade workers, patrons of sex trade workers and injection drug users.

The ability of Public Health to perform thorough contact tracing and partner notification directly affects its success in reducing the incidence of sexually transmitted infections. In New Brunswick, contact tracing is often challenging because one in three syphilis cases have reported having anonymous sex partner(s) in the last year. These challenges are compounded by multiple anonymous contacts associated with the Internet and bathhouses as well as by the apparent transient nature of some cases into and out of the province.

Strategies to prevent infection and reduce risk of transmission by already infected individuals include reducing number of sex partners as well as using condoms correctly and consistently. Regular screening

and provision of treatment for those infected and their partners will also contribute to a reduction in disease transmission.

As part of the ongoing monitoring of the outbreak, clinicians are asked to continue to refer individuals who test positive for syphilis to Public Health for contact tracing and follow-up with an enhanced surveillance questionnaire.



# SYPHILIS

**Outbreak among men in New Brunswick**

Syphilis can kill.  
Wear a condom.  
Get tested.

Call your family doctor or visit [gnb.ca/WhoKnew](http://gnb.ca/WhoKnew)

**Écllosion chez les hommes au Nouveau-Brunswick**

La syphilis peut vous tuer.  
Portez un condom.  
Faites-vous tester.

Consultez votre médecin de famille ou visitez [gnb.ca/QuiSait](http://gnb.ca/QuiSait)

New Brunswick

## Training opportunity for health professionals: 3-Minute Empowerment

A training pilot program for health-care professionals, **3-Minute Empowerment: Improve Efficiency–Support Behavioral Change**, is well underway. This initiative is being undertaken by the Department of Health (Primary Care and Public Health) and the Department of Wellness, Culture and Sport (Wellness Branch) in partnership with Pfizer.

Health-care professionals often say they could benefit from training in how to support their clients more effectively in adopting healthier behaviours and lifestyles, especially in terms of managing chronic diseases. They also suggest that training programs need to be adapted to real-life practice settings, where there is often minimal time for skill development and client counselling. After several options were considered, the 3-Minute Empowerment program was chosen because it demonstrates key qualities that suggest it would be appropriate, affordable and accessible.

The main focus is to help health-care professionals motivate patients to make lifestyle changes. Participants will learn practice strategies that will facilitate their efforts:

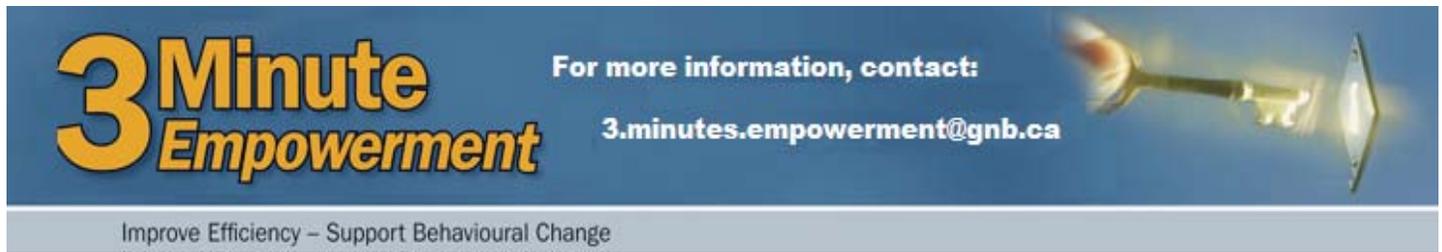
- to engage in effective partnerships with their patients to support positive behaviour changes;
- to perform rapid assessments (hence, “3-Minute”) of their patients’ readiness for change;
- to help patients to increase motivation and overcome barriers to change; and
- to use practical and efficient strategies, given the significant time constraints of clinical practice.

The program, which runs 90 minutes in total, encourages interaction between participants. The clinical cases, role playing and self-reflection exercises enable health-care professionals to become facilitators of change by assessing their patients through interventions using motivational interviewing techniques, including Prochaska’s Stages of Change model [1]. Physicians, nurses, physiotherapists, respiratory therapists and other health-care professionals have undertaken this training (see Map) and are seeing positive results among their clients.

This training is available to all health-care professionals across the province and is being supported by the Horizon and Vitalité regional health authorities. The program has been reviewed by the College of Family Physicians of Canada, and it is awaiting final accreditation by the College’s Provincial Chapters (review is valid until Jan. 21, 2012). The Canadian Council on Continuing Education in Pharmacy has accredited this program for 1.5 CEUs for the pharmacist specific

program (CCCEP File #816-1208L1; accreditation is valid until Jan. 5, 2012) and also for the multidisciplinary

program (CCCEP File #1044-2009-503-L-P; accreditation is valid until Jan. 19, 2013).



Reference

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### Completed sessions and participants of the 3-Minute Empowerment training program, by health region (April-July 2011)

